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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,879	11/27/2002	Christopher A. Newton	BUR920010144	5280
30449	7590	04/05/2005	EXAMINER	
SCHMEISER, OLSEN + WATTS			LUND, JEFFRIE ROBERT	
3 LEAR JET LANE			ART UNIT	
SUITE 201			PAPER NUMBER	
LATHAM, NY 12110			1763	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,879

Applicant(s)

NEWTON ET AL.

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,19 and 20 is/are pending in the application.
4a) Of the above claim(s) 13-16 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3-12,17,19 and 20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-7, 9-12, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al, JP 3-281780, in view of Deacon et al, US Patent 5,792,269.

Mitani et al teaches an apparatus that includes a chamber 15 adapted for holding a workpiece having a surface layer; a gas distribution plate 112 with a first plurality of channels with a first angle of 90 degrees in a first groove 22 for providing a first fluid to the chamber and a second plurality of channels with a second angle of 90 degrees in a second groove 23 for providing a second fluid to the chamber. The channels are arranged in rings around a common center point of the distribution plate. The workpiece is separated from the gas distribution plate a distance of 3/16 to 9/16 of an inch. The rings have a diameter of more than 1.75 inches to about 7.04 inches. The grooves have a greater volume than the channels. The channels are arranged in a circle. (Figures 1 and 2 and throughout the specification, specifically, working example 1)

Mitani et al differs from the present invention in that Mitani et al does not teach that the channels form a flow at an angle of 45 to less than 90 degrees with respect to

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the surface of the distribution plate and/or with respect to the XY plane, the flow path is offset from the XY plane at an offset angle \forall and \exists at an angle of about 0 to about $\pm 45^\circ$, an annular ring constricting the exhaust gases between the ring's edge and the wall of the chamber, the size of the constriction, and the type of gas supplied to each channel.

Deacon et al teaches channels 41 that are angled at 72 degrees, and includes an annular ring (baffle/plate) constricting the exhaust gases between the ring's edge and the wall of the chamber. (Entire document) Deacon et al also teaches various hole patterns one of which includes a flow at an angle of 45 to less than 90 degrees (i.e. 72°) with respect to the XY plane, and the flow path is offset from the XY plane at an offset angle \forall and \exists (as defined in the applicant's specification in paragraph 53) at a range of angles 0 to $\pm 45^\circ$ (see figure 19).

The motivation for angling and offsetting the channels of Mitani et al is to improve step coverage as taught by Deacon et al. The motivation for adding the annular ring is to improve the uniformity of the exhaust gas flow by providing a restricted area that equalizes the suction applied by the vacuum pump to the chamber. The motivation for making the constriction at least 3/8 of an inch is to optimize size of the constriction. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04

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(d)) The motivation for supplying a specific gas to each channel is to deposit a specific layer.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to angle and offset the channel of Mitani et al, and add the annular constricting ring of the correct size to the apparatus of Mitani et al, as taught by Deacon et al, and to supply the desired process gases to deposit the desired layer.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al and Deacon et al as applied to claims 1, 3, 5-7, 9-11, 17, 19, and 20 above, and further in view of Plavidal et al, US Patent 5,718,795.

Mitani et al and Deacon et al differs from the present invention in that they do not teach that the dispersion plate is made of polytetrafluoroethylene.

Plavidal et al teaches that the dispersion plate is made of polytetrafluoroethylene (Teflon®) (column 4 lines 48-49).

The motivation for making the dispersion plate out of polytetrafluoroethylene is to provide a material of construction, which is required but not disclosed by Mitani et al and Deacon et al. Polytetrafluoroethylene is well known in the art and is used because it is chemically inert.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the dispersion plate of Mitani et al and Deacon et al out of polytetrafluoroethylene as taught by Plavidal et al.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al and Deacon et al as applied to claims 1, 3, 5-7, 9-11, 17, 19, and 20 above, and

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further in view of Hasegawa et al, US Patent 5,837,093.

Mitani et al and Deacon et al differs from the present invention in that they do not teach an annular ring that includes a plurality of holes extending over an exhaust port.

Hasegawa et al teaches an annular ring 29 that includes a plurality of holes 30 extending over an exhaust port 31.

The motivation for adding the annular ring with a plurality of holes of Hasegawa et al in the apparatus of Mitani et al and Deacon et al is to improve the uniformity of the flow across the wafer and to the exhaust port, thereby improving the uniformity of the processed wafer.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add annular ring of Hasegawa et al to the apparatus of Mitani et al and Deacon et al.

Response to Arguments

5. Applicant's arguments filed September 20, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Deacon et al

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teaches replacing a distribution plate having vertical channels with a distribution plate having angled channels, and suggests that this change will improve the step coating of the deposition apparatus. Also it is generally known that the gas distribution plate is dependent on each method performed in a deposition or etching apparatus, and the gas distribution plate must be optimized for each method; and that each deposition or etching apparatus can be used for many different processes.

In response to applicant's argument that the examiner has (or could) combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication of references. (See MPEP 707.07(g))

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

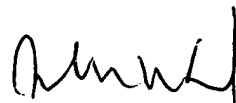
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
4/4/05